



## **National Highway Traffic Safety Administration**

**[Docket No. NHTSA-2022-0057]**

### **Czinger Vehicles – Grant of Petition for Temporary Exemption from Certain Requirements of FMVSS No. 205, Glazing materials**

**AGENCY:** National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

**ACTION:** Notice of grant of petition for temporary exemption.

**SUMMARY:** This notice grants the petition of Czinger Vehicles (Czinger) for a temporary exemption from windshield abrasion resistance requirements in Federal motor vehicle safety standard (FMVSS) No. 205, Glazing materials. The basis for the exemption is that compliance with these requirements would cause substantial economic hardship to a low volume manufacturer that has tried in good faith to comply with the standard. This action follows our publication in the Federal Register of a document announcing receipt of Czinger's petition and soliciting public comments. We received no comments on the petition.

**DATES:** The exemption from the windshield abrasion resistance requirements in FMVSS No. 205 is effective from August 1, 2023, through July 31, 2026.

**FOR FURTHER INFORMATION CONTACT:** Callie Roach, Office of the Chief Counsel, National Highway Traffic Safety Administration, 1200 New Jersey Avenue S.E., Washington, D.C. 20590. Telephone: 202-366-2992; Fax: 202-366-3820.

#### **SUPPLEMENTARY INFORMATION:**

NHTSA is granting a request from Czinger for a temporary exemption from FMVSS No. 205's abrasion resistance requirements for windshields for its first vehicle model, the 21C. In accordance with statutory and regulatory requirements, NHTSA is granting the petition on the basis that compliance would cause substantial economic hardship to a low volume manufacturer that has tried in good faith to comply with the standard.

## **I. Relevant Legal Authority and Regulations**

### **a. Statutory and Regulatory Requirements for Temporary Exemptions**

NHTSA is responsible for promulgating and enforcing FMVSS designed to improve motor vehicle safety. Generally, a manufacturer may not manufacture for sale, sell, offer for sale, or introduce or deliver for introduction into interstate commerce a vehicle that does not comply with all applicable FMVSS.<sup>1</sup> There are limited exceptions to this general prohibition.<sup>2</sup> One path permits manufacturers to petition NHTSA for an exemption for noncompliant vehicles under specified statutory bases.<sup>3</sup>

The National Traffic and Motor Vehicle Safety Act (Safety Act), codified at 49 U.S.C. Chapter 301, authorizes the Secretary of Transportation to exempt, on a temporary basis and under specified circumstances, and on terms the Secretary considers appropriate, motor vehicles from a FMVSS or bumper standard. This authority is set forth at 49 U.S.C. § 30113. The Secretary has delegated the authority for implementing this section to NHTSA.<sup>4</sup>

The Safety Act authorizes NHTSA (by delegation) to grant, in whole or in part, a temporary exemption to a vehicle manufacturer if certain specified findings are made.<sup>5</sup> The agency must find that the exemption is consistent with the public interest and the objectives of the Safety Act.<sup>6</sup> In addition, exemptions under § 30113 must meet one of four bases. Czinger petitioned under the first of these bases, asserting that “[c]ompliance with the standard[s] [from which exemption is sought] would cause substantial economic hardship to a manufacturer that has tried to comply with the standard[s] in good faith.”<sup>7</sup>

NHTSA established 49 CFR Part 555, Temporary Exemption from Motor Vehicle Safety and Bumper Standards, to implement the statutory provisions concerning temporary exemptions.

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<sup>1</sup> 49 U.S.C. 30112(a)(1).

<sup>2</sup> 49 U.S.C. 30112(b); 49 U.S.C. 30113; 49 U.S.C. 30114.

<sup>3</sup> 49 U.S.C. 30113.

<sup>4</sup> 49 CFR 1.95.

<sup>5</sup> 49 U.S.C. 30113(b)(3).

<sup>6</sup> 49 U.S.C. 30113(b)(3)(A).

<sup>7</sup> 49 U.S.C. 30113(b)(3)(B)(i).

The requirements in 49 CFR 555.5 state that the petitioner must set forth the basis of the petition by providing the information required under 49 CFR 555.6, and the reasons why the exemption would be in the public interest and consistent with the objectives of the Safety Act. A petition submitted on the substantial economic hardship basis must include the information specified in 49 CFR 555.6(a).

**b. FMVSS No. 205 Abrasion Requirements for Windshields**

Czinger's petition seeks an exemption from requirements in FMVSS No. 205, Glazing materials. The purpose of FMVSS No. 205 is to reduce injuries (e.g., lacerations) resulting from impact to glazing surfaces, to ensure a necessary degree of transparency in motor vehicle windows for driver visibility, and to minimize the possibility of occupants being thrown through the windows in collisions. Most of the performance requirements for glazing, including the requirement from which Czinger is seeking an exemption, are found in an industry standard, the "American National Standards Institute American National Standard for Safety Glazing Materials for Glazing Motor Vehicles and Motor Vehicle Equipment Operating on Land Highways-Safety Standard" (ANSI/SAE Z26.1-1996), which FMVSS No. 205 incorporates by reference.

Czinger's petition concerns requirements for glazing used in windshields. ANSI/SAE Z26.1-1996 sets forth groups of tests that must be met by different glazing types. The standard explains that "[s]afety glazing materials in motor vehicles shall comply with the applicable requirements listed in this subsection and shown in Table 1, item by item, in definite groupings of tests that are appropriate for the safety glazing material in question, and the location in the motor vehicle in which it is intended to be used." For example, AS-1 glazing may be used anywhere in vehicles, including windshields. For AS-1 glazing, the standard provides a list of tests for Laminated Glass, Class 1 Multiple Glazed Unit, and Class 2 Multiple Glazed Unit. For AS-1 glazing, Laminated Glass must meet Test Nos. 1, 2, 3, 4, 9, 12, 15, 18, and 26. As additional background, although the glazing Czinger proposes to use in the 21C's windshield is

polycarbonate, NHTSA does not prohibit the material from being used in windshields so long as it meets the tests for one of the glazing types listed. In an interpretation letter issued to Exatec, LLC, NHTSA explained that glazing types not listed in the standard may be used interchangeably with the corresponding materials specified in the standard if and when other materials are developed that possess properties such that they meet one or another of the prescribed groups of tests.<sup>8</sup>

Czinger's petition requests an exemption from the requirement that windshield glazing meet the performance requirements specified in Test 18 for abrasion resistance. The purpose of these abrasion requirements is to ensure that the glazing will resist scratching that can distort the driver's view and thus reduce visibility. Test 18 requires that a specimen of the glazing be subjected to abrasion for 1000 cycles in the manner described in ANSI/SAE Z26.1-1996 section 5.17. After the specimen has been abraded, the amount of light scattered by the specimen cannot exceed 2.0%.

## **II. Czinger's Petition and Supplemental Information**

In accordance with 49 U.S.C. 30113 and the procedures in 49 CFR Part 555, Czinger submitted a petition on December 12, 2021 for a temporary exemption from the windshield abrasion resistance requirements in FMVSS No. 205, Glazing materials. In addition to its original petition, Czinger submitted supplemental information on October 21, 2022 and January 25, 2023. Copies of these materials have been placed in the docket identified at the beginning of this document.

In its petition, Czinger describes itself as a small volume start-up producer of innovative sports cars.<sup>9</sup> Czinger states that it is located in Los Angeles, California and was founded in 2021.<sup>10</sup> Czinger further states that once production begins in 2023, the company will produce

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<sup>8</sup> See letter to Mr. Clemens Kaiser (September 23, 2005), available at <https://www.nhtsa.gov/interpretations/04-005908dm>.

<sup>9</sup> Czinger petition at page 3.

<sup>10</sup> *Id.*

approximately 50 cars per year worldwide.<sup>11</sup> The forecasted production and US sales estimates provided by Czinger indicate that, for the three years for which Czinger is requesting a temporary exemption, Czinger expects to sell a total of 55 vehicles to the U.S. market.<sup>12</sup>

Czinger is seeking an exemption for the Czinger 21C model. Czinger states that its 21C model vehicle is presently under development and describes it as a hypercar comprised of lightweight materials and a hybrid electric powertrain system as its foundation.<sup>13</sup> Czinger describes the 21C as a “still-in development high-technology, ultra-high performance, high quality Hypercar.”<sup>14</sup> In support of these assertions, Czinger states that the “advanced AI developed multi material chassis delivers exceptional light weight” and that the “crash structures have been optimized to deliver the safest Hyper-sports car on the market.”<sup>15</sup> Czinger states that the 21C’s hybrid power train uses the world’s most power-dense production internal combustion engine as its foundation and that the total strong hybrid system delivers a peak output of 1250hp (1233bhp).<sup>16</sup> Czinger also states that the 21C’s low drag configuration optimizes light-weighting and aerodynamics, allowing for greater efficiency at all speeds.<sup>17</sup> Czinger explains that the vehicle is produced using Additive Manufacturing technology (the industrial production name for 3D printing), which Czinger asserts requires less material, less energy, and less infrastructure than current, widely used, production techniques.<sup>18</sup>

*Requested Exemption.* Czinger petitioned for an exemption from requirements for glazing it seeks to use in the windshield of Czinger’s 21C model on the basis that compliance with the standard would cause substantial economic hardship. Czinger is seeking a temporary exemption for three years to allow Czinger to produce a total of 55 noncompliant vehicles.

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<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at page 6. Czinger’s forecasted production for Model Years 2023, 2024, and 2025 is 20 vehicles, 50 vehicles, and 10 vehicles respectively, with an estimated 10 vehicles, 35 vehicles, and 10 vehicles sold in the U.S. in those years.

<sup>13</sup> *Id.* at page 3.

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at page 4.

Czinger states that all glazing on the 21C will be compliant with FMVSS No. 205 with the exception of the windshield.<sup>19</sup> Czinger states that it believes that the only requirements with which the windshield will not comply are those regarding abrasion resistance.<sup>20</sup> In supplemental information submitted on October 21, 2022, Czinger confirmed that the glazing for use in the 21C's windshield meets the performance requirements in Tests Nos. 1, 2, 3, 4, 9, 12, 15, and 26.<sup>21</sup> Czinger also confirmed that the glazing is not expected to meet the abrasion requirements in Test 18.<sup>22</sup>

Eligibility. To be eligible for a temporary exemption on the substantial economic hardship basis, the petitioner's total motor vehicle production in the most recent year of production must be not more than 10,000 vehicles.<sup>23</sup> To demonstrate compliance with this requirement, and pursuant to 49 CFR 555.6(a)(2)(v), Czinger stated that it has not produced any motor vehicles to date.<sup>24</sup>

Substantial economic hardship. In support of its claim that compliance with the windshield abrasion resistance requirements would cause substantial economic hardship, Czinger states that it is experiencing substantial economic hardship, which would be exacerbated by the denial of its exemption petition.<sup>25</sup> Czinger states that it has 35 employees and has been operating since 2021 without any sales.<sup>26</sup> Czinger states that, in a best-case scenario, the company will have two additional years with high expenses and no sales while product development for the 21C is completed.<sup>27</sup>

Czinger states that compliance with the standard would result in an extra loss of \$38 million.<sup>28</sup> Czinger explains that the additional loss would result from an additional \$3.7 million

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<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> Czinger's Supplemental Information Submission from October 2022 at page 2.

<sup>22</sup> *Id.* at page 2.

<sup>23</sup> 49 U.S.C. 30113(d).

<sup>24</sup> Czinger petition at page 4.

<sup>25</sup> *Id.* at page 6.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at page 7.

in research and development costs, a 6-month delay bringing its product to market, and a 15% loss of 21C sales due to the car's modified aesthetics (as necessitated by a laminated windshield).<sup>29</sup>

In further support of its petition, Czinger notes that it has been enduring the pandemic and supply chain issues which, Czinger states, are straining even established OEMs.<sup>30</sup> As a startup, Czinger states that it needs flexibility to endure these challenges.<sup>31</sup>

In supplemental information submitted in January 2023, Czinger indicated that because compliance with the windshield abrasion requirement cannot be achieved with the current vehicle design, in the absence of an exemption, Czinger would produce the vehicle for export only.<sup>32</sup> Czinger states that if the exemption were granted for only one year, production for the U.S. market would be reduced by 82% and if the exemption were granted for only two years, production for the U.S. market would be reduced by 18%.<sup>33</sup> Czinger also provided information about the losses of revenue associated with those lower production volumes. Given the development costs Czinger has incurred to date, Czinger states that the loss in sales from not being able to sell vehicles in the U.S. would result in financial failure of the business.<sup>34</sup>

In the supplemental information submitted in January 2023, Czinger also stated that if the exemption were granted, it would allow Czinger to “secure revenue essential to its continuation and allow it to form a bridge to be in a position to produce vehicles where such exemptions are not required.”<sup>35</sup> Czinger noted that while its first vehicle model, the 21C, is a low volume hypercar, the majority of Czinger's future business will be higher volume vehicles such as the Czinger Hyper GT which was revealed at Monterey Car Week in August 2022.<sup>36</sup> This

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at page 8.

<sup>31</sup> *Id.*

<sup>32</sup> Czinger's Supplemental Information Submission from January 2023 at page 3.

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

<sup>35</sup> *Id.* at page 2.

<sup>36</sup> *Id.*

subsequent model, Czinger states, uses a more conventional windshield shape for which the production material will be conventional automotive glass.<sup>37</sup>

Good Faith Efforts to Comply. Pursuant to 49 CFR 555.6(a)(2), a petition for a temporary exemption made under the substantial economic hardship basis must include a description of the petitioner's efforts to comply with the standard for which the exemption is sought. In support of its petition, Czinger asserts that it has put considerable good faith efforts into FMVSS compliance.<sup>38</sup>

Czinger states that the 21C has been designed with in-line seating for two occupants.<sup>39</sup> The central seating position, Czinger explains, allows for an extremely streamlined frontal profile, reducing drag and improving fuel economy, as well as improving performance.<sup>40</sup> Czinger states that this "fighter jet" design has been highly regarded by media, and more significantly, by prospective clients.<sup>41</sup>

Czinger states that the wrap-around cockpit is realized by a unique double curvature windscreen, which, during prototype stage, was produced in polycarbonate by Isoclima, a supplier in Europe.<sup>42</sup> Czinger states that the hard polycarbonate material passes European requirements in accordance with ECE R43, including impact performance and abrasion haze resistance.<sup>43</sup> Czinger states that because of the extreme size and shape of the 21C windshield, its supplier, Isoclima, has informed Czinger that the windshield must be produced in polycarbonate.<sup>44</sup>

Czinger also states that at an early stage in the development of the 21C, its supplier Isoclima indicated that it believed the polycarbonate windshield would meet regulatory

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<sup>37</sup> *Id.*

<sup>38</sup> Czinger's petition at page 8.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *Id.*

<sup>44</sup> *Id.* at page 9.



requirements for the USA market.<sup>45</sup> Czinger states that, based on this information, Czinger proceeded with the polycarbonate windshield development.<sup>46</sup>

Czinger also states that, despite Isoclima's opinion that the shape of the 21C windshield could not be produced in laminated glass, Czinger invested time and money trying to develop, with the help of multiple suppliers, the planned windshield shape in laminated glass.<sup>47</sup> Specifically, Czinger states that it engaged a Los Angeles-based artisan glazing supplier and tried 20 iterations of tooling strategies, produced over 80 test samples, and made some design changes to improve formability.<sup>48</sup> These efforts, Czinger states, have not been successful.<sup>49</sup>

In supplemental information submitted in January 2023, Czinger stated that it undertook a comprehensive assessment, at a cost of \$80,000, of different physical manufacturing techniques with its windshield supplier, Isoclima, in a concerted effort to achieve a solution to manufacture the windshield in glass.<sup>50</sup> The effort, Czinger states, proved unsuccessful and the conclusion was that due to the geometry of the windshield, it could not be manufactured in glass.<sup>51</sup>

*Public Interest.* Czinger asserts that granting its petition is consistent with the public interest and the Safety Act for the following reasons:

1. The 21C model range will comply with all FMVSS other than the windshield requirements in FMVSS 205.<sup>52</sup>
2. The exempted cars will have a windshield that meets all EU requirements.<sup>53</sup>
3. The exempted cars will not present an unacceptable safety risk.<sup>54</sup>

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<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> *Id.*

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> Czinger's Supplemental Information Submission from January 2023 at page 2.

<sup>51</sup> *Id.*

<sup>52</sup> *Id.* at page 10.

<sup>53</sup> *Id.*

<sup>54</sup> *Id.* at pages 10-11.

In support of this assertion, Czinger states that the 21C's crash performance and occupant protection performance is improved when using polycarbonate, compared to laminated glass.<sup>55</sup> Czinger states that it has run crash simulations measuring occupant injury criteria and observes overall improvements in performance with the polycarbonate windshield.<sup>56</sup> Czinger also notes that the 21C has an advanced dynamic knee bolster that deploys a lower IP surface to minimize forward movement of the driver in an unbelted impact scenario.<sup>57</sup> Czinger asserts that this system, in combination with the highly optimized DAPS (Divergent Adaptive Production System) front crash structure, virtually negates the possibility of head impact to the windshield.<sup>58</sup>

As regards visibility, Czinger states its belief that since polycarbonate windshields are permitted in aircrafts, the risks of unacceptable impaired driver visibility due to abrasion *are de minimis*. Czinger also states that 21C's windshield glazing passes the European requirements for abrasion haze resistance in ECE R43.<sup>59</sup> In supplemental information submitted in October 2022, Czinger stated that the 21C's polycarbonate windshield will also meet all of the required tests for AS-4 glazing, which is rigid plastic glazing for use in specific areas of vehicles.<sup>60</sup> AS-4 glazing is required to meet Test Nos. 2, 10, 13, 16, 17, 19, 20, 21, and 24 . In support of its assertion that the 21C's windshield glazing meets the AS-4 requirements, Czinger submitted a copy of a 2016 third party laboratory test report that states that the 3mm and 6mm thick samples of the Isoclima material, which Czinger states that it is using in its windshield, have passed Item 4 (AS4) testing.

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<sup>55</sup> *Id.* at page 11.

<sup>56</sup> *Id.* at page 11.

<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Id.* at page 8.

<sup>60</sup> AS-4 glazing may be used in the windshield of low-speed vehicles, in interior partitions and auxiliary wind deflectors, folding doors, standee windows in buses, flexible curtains or readily removable windows or in ventilators used in conjunction with readily removable windows, openings in the roof not requisite for driving visibility, trailers, glazing to the rear of the driver in trucks or truck tractor cabs where other means of affording visibility of the highway to the side and rear of the vehicle are provided, the rear windows of convertible passenger car tops, the rear doors of taxicabs, readily removable windows of buses having a GVWR of more than 4540 kg (10,000lb), windows and doors in motorhomes (except for the windshields and windows to the immediate right or left of the driver), windows and doors in slide-in campers and pickup covers, and windows and doors in buses except for the windshield, windows to the immediate right or left of the driver, and rearmost windows if used for driving visibility. See 49 CFR 571.205 S5.4 and ANSI/SAE Z26.1-1996 page 8.

A copy of this report is included in Czinger's supplementary submission from October 2022 and available in the docket identified at the beginning of this notice.

4. The 21C will be produced in the U.S. in very low numbers and will not be used daily due to its unconventional design.<sup>61</sup>

In support of this assertion, Czinger states that the 21C will be a hand-built specialty car, high-priced and with an unusual design.<sup>62</sup> Czinger states that it believes owners of 21C vehicles will use their vehicles occasionally, rather than for regular transportation, and predicts that the 21Cs will be driven a mere 350 miles per year.<sup>63</sup> In support of this estimate, Czinger provided data for 33 hypercars valued at more than \$1 million demonstrating an average accumulated mileage of 259 miles per year.<sup>64</sup> Czinger provided additional information about the hypercar use case in the supplemental information submitted in October 2022. Czinger stated that a hypercar is atypical when compared to more conventional vehicles.<sup>65</sup> Czinger also stated that it performed some analysis with a sample of 53 hypercars across a range of brands and found that the average mileage of these vehicles was 266 miles per year.<sup>66</sup>

5. The denial of the exemption request could have a negative effect on U.S. employment.<sup>67</sup>

In support of this assertion, Czinger states that denying its petition could result in temporary job losses, not only at Czinger, but throughout its distribution chain.<sup>68</sup> Czinger also

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<sup>61</sup> Czinger Petition at page 11.

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.* at page 15.

<sup>65</sup> Czinger's Supplemental Information submitted in October 2022 at page 3.

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at page 11.

<sup>68</sup> *Id.*

notes that the same negative effect was identified by NHTSA in a 2006 decision notice granting an exemption to Ferrari.<sup>69</sup>

6. The 21C's innovative technology is a benefit to the public.<sup>70</sup>

In support of this assertion, Czinger states that the 21C offers very significant public interest benefits – the use of Additive Manufacturing technology, weight-saving technology, advanced hybrid drivetrain technology, and innovative crash protection technology.<sup>71</sup>

Czinger states that granting its requested exemption would expedite bringing these technologies to the U.S. market.<sup>72</sup>

Additional Czinger Steps. Czinger states that each 21C sold under an exemption will undergo regular, frequent inspections, and any windshield with degraded visibility will be identified and replaced free of charge. In supplemental information submitted in October 2022, Czinger stated that it would be willing to install tear offs, which are thin protective films.<sup>73</sup> Czinger states that it could install these films on the windshield and the films could be a regular service item.<sup>74</sup>

### III. Request for Public Comment

On July 7, 2022, NHTSA published a notice in the Federal Register announcing receipt of Czinger's petition and requesting public comment.<sup>75</sup> The notice provided a 30-day comment period, which closed on August 8, 2022. No comments were received.

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<sup>69</sup> *Id.* at 11 citing a May 22, 2006 notice (71 FR 29389) stating “[w]e note that Ferrari is a well-established company with a small but not insignificant U.S. presence, and we believe that an 85 percent sales reduction would negatively affect U.S. employment. Specifically, reduction in sales would likely affect employment not only at Ferrari North America, but also at Ferrari dealers, repair specialists, and several small service providers that transport Ferrari vehicles from the port of entry to the rest of the United States. Traditionally, the agency has concluded that the public interest is served in affording continued employment to the petitioner's U.S. work force.”

<sup>70</sup> *Id.* at page 12.

<sup>71</sup> *Id.*

<sup>72</sup> *Id.*

<sup>73</sup> Czinger's Supplemental Information submitted in October 2022 at page 3.

<sup>74</sup> *Id.*

<sup>75</sup> 87 FR 40585.

#### IV. Agency Analysis and Decision

In this section we provide our analysis and decision regarding Czinger's temporary exemption request from certain requirements in FMVSS No. 205. As explained below, we are granting Czinger's petition for the 21C to be exempted from the requirement for the glazing materials in the 21C's windshield to meet Test 18. The agency's rationale for this decision is as follows:

Eligibility. As discussed above, a manufacturer is eligible to apply for an economic hardship exemption if its total motor vehicle production in its most recent year of production did not exceed 10,000 vehicles. In its petition, Czinger indicated that at the time of submitting the petition, it had not produced any vehicles for sale and stated that it predicted producing 55 vehicles during the exemption period if an exemption were granted. Accordingly, we have determined that Czinger is eligible to apply for an economic hardship exemption as a low volume manufacturer.

Economic Hardship. Czinger states that compliance with the standard will result in an extra loss of \$38 million.<sup>76</sup> Czinger states that it has 35 employees and has been operating since 2021 without any sales.<sup>77</sup> Czinger states that, in a best case scenario, the company will have two additional years with high expenses and no sales while product development for the 21C is completed.<sup>78</sup> Czinger explains that denial of its petition would result in an additional loss of \$3.7 million in research and development costs, a 6-month delay bringing its product to market, and an estimated 15% loss of 21C sales due to the car's modified aesthetics (as necessitated by a laminated windshield).<sup>79</sup> The confidential information Czinger submitted in its petition supports its assertion that it is experiencing substantial economic hardship, which would be exacerbated by the denial of its exemption petition.

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<sup>76</sup> *Id.* at page 7.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

The touchstone that NHTSA uses in determining the existence of substantial economic hardship is an applicant's financial health, as indicated by its income statements. NHTSA has tended to consider a continuing and cumulative net loss position as strong evidence of hardship.<sup>80</sup> The theory behind NHTSA's rationale is that if a company with a continuing net loss is required to divert its limited resources to resolve a compliance problem on an immediate basis, it may be unable to use those resources to resolve other problems that may affect its viability. The agency has considered this especially important in its treatment of petitioners that are just starting to manufacture vehicles. Based on these factors, we conclude that Czinger has demonstrated the requisite economic hardship.

*Good Faith Efforts to Comply.* In addition to demonstrating that compliance with the standard for which it is seeking an exemption would result in substantial economic hardship, Czinger must demonstrate that it has made good faith efforts to comply with the standard. NHTSA believes Czinger has met this requirement.

In this present case, NHTSA finds that Czinger had reason to believe that it would be able to create a FMVSS-compliant version of its unique vehicle design. Despite the vehicle's unique inline cockpit seating arrangement necessitating a unique double curvature windshield, Czinger had early assurances that its supplier would be able to produce a windshield that met Czinger's shape requirements while also meeting FMVSS requirements. NHTSA also finds that, at the point that Czinger realized that the 21C's windshield would not meet the abrasion resistance requirements, it took good faith efforts to try to source a compliant windshield. Specifically, we note Czinger's statement that it began efforts in August 2020 to locate a supplier that could produce the windshield shape in laminated glass. Czinger stated that it engaged a Los Angeles-based artisan glazing supplier and tried 20 iterations of tooling strategies, produced over 80 test samples and made some design changes to improve formability. When these efforts were not successful, Czinger sought this exemption.

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<sup>80</sup>March 11, 1994 grant of petition of Bugatti Automobili, S.p.A., (59 FR 11649 at 11650).

As explained in its petition and supplemental information from January 2023, Czinger intends to stop production of the 21C for the U.S. market at the end of the requested exemption period because it has determined that it is not possible to create a FMVSS No. 205 compliant windshield in the shape required for the 21C. NHTSA has no reason to doubt this statement and believes that it further demonstrates that Czinger has made good faith efforts to comply with the standard but is unable to do so.

*Public Interest.* The final consideration for granting an exemption under 49 U.S.C. 30113 and Part 555 is whether granting the exemption is in the public interest and consistent with the objectives of the Safety Act. NHTSA finds that in Czinger's case it is.

In its petition, Czinger cites six reasons that granting its petition is in the public interest. The first four of these reasons are related to safety. Czinger states, first, that the 21C will comply with all applicable FMVSS except for windshield glazing requirements in FMVSS No. 205; second, that the exempted vehicles will have a windshield that meets all EU requirements; third, that the exempted vehicles will not present an unacceptable safety risk; and fourth, that the 21C will be built in small numbers and will not be driven daily due to its unconventional design.

While NHTSA acknowledges that Czinger is only requesting an exemption from one requirement and Czinger will only produce a small number of the vehicles, this information alone is insufficient to demonstrate that granting the exemption is in the public interest. That is, a request for exemption from a single requirement for a small number of vehicles could be inconsistent with the public interest if that one exemption presents an unreasonable risk to motor vehicle safety. For this reason, NHTSA first considered how granting the exemption would impact safety.

Czinger's request is for an exemption from certain requirements for windshield glazing. The abrasion resistance requirements are considered to be crash avoidance requirements because the safety benefit of the requirements is derived from the prevention of crashes as opposed to the mitigation of the results of crash impacts (i.e., crashworthiness). This means that instead of just

considering how the exemption may impact the safety to occupants of an exempt vehicle, we must also consider how the exemption may impact the safety of other road users.

We now turn to Czinger's second point and its assertions about how it is able to assure that the 21C's windshield will provide adequate driving visibility despite not meeting the abrasion resistance requirements in Test No. 18 in ANSI/SAE Z26.1-1996. Czinger asserts that the exemption presents minimal risk to safety because the windshield complies with all European requirements for windshield glazing, including the abrasion resistance requirements in ECE R43. While NHTSA has not conducted a full analysis of the differences between Test 18 and the requirements in ECE R43, NHTSA does consider compliance with the ECE standard to be an indication that the glazing used for the 21C's windshield has some level of resistance to abrasion, which is expected to help maintain driver visibility.

In further support of the assertion that the exemption's safety impact will be limited, Czinger provided information regarding the compliance of the 21C's windshield with another abrasion resistance requirement in ANSI/SAE Z26.1-1996. Specifically, Czinger states that the glazing for use in windshields would meet all requirements for AS-4 glazing, including requirements for abrasion resistance. AS-4 glazing is permitted to be used in specific locations in a motor vehicle and must comply with Test Nos. 2, 10, 13, 16, 17, 19, 20, 21, and 24. The abrasion resistance requirements are found in Test 17 and differ from the requirements in Test 18 in two key aspects. First, while Test 17 and Test 18 use the same test method, specimens are abraded for 100 cycles in Test 17 and 1000 cycles in Test 18. Second, while Test 17 requires that the light scattered by the specimens not exceed 15.0%, Test 18 requires that the light scattered by the specimens not exceed 2.0%. As with the information regarding compliance with ECE R43, NHTSA considers the information regarding compliance with the less stringent AS-4 requirements of Test 17 to be some indication of the windshield's abrasion resistance. This information is supportive of Czinger's assertion that the safety impacts of granting the exemption would be minimal.



The decision to grant or deny an economic hardship exemption under part 555 does not turn on whether the failure to meet the standard is consequential to safety.<sup>81</sup> Instead, the decision is based on whether the petitioner meets the criteria for an economic hardship exemption and whether, on balance, granting the petition is in the public interest and consistent with the Safety Act.<sup>82</sup> In implementing this authority, NHTSA considers the risk associated with the particular noncompliance and determines whether the specific circumstances warrant granting an exemption to a low volume manufacturer that would otherwise face economic hardship. NHTSA also considers whether granting the exemption would introduce a defect that presents an unreasonable risk to safety. The presence of such a defect would implicate NHTSA's defect authority under the Safety Act and NHTSA would be compelled to find that granting the exemption is not consistent with the Safety Act.

Considering the impacts of not meeting the abrasion resistance requirements is just one part of NHTSA's consideration of the overall safety impacts of granting Czinger's exemption request. NHTSA also considers whether there are mitigating factors that may reduce the risk associated with exemption, as well as whether there are any other safety risks associated with the vehicle.

In order to mitigate risks associated with the noncompliance, Czinger proposed two different additional steps that it could take. First, in its petition, Czinger notes that each 21C sold under the exemption would undergo regular, frequent inspections. Czinger states that any windshield with degraded visibility would be identified and replaced free-of-charge. NHTSA

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<sup>81</sup> However, as this glazing does not provide the same level of safety performance as compliant glazing, NHTSA notes that it views the failure to meet the abrasion resistance requirements of Test 18 as "consequential" to motor vehicle safety, and not as a basis, e.g., for grant of a petition for inconsequential non-compliance under 49 CFR part 556.

<sup>82</sup> In contrast to the other three statutory bases for exemptions under 49 U.S.C. 30113(b)(3)(B), which articulate safety limitations ("safety level at least equal to the safety level of the standard," "not unreasonably lower the safety level of that vehicle," and "overall safety level at least equal to the overall safety level of nonexempt vehicles"), the economic hardship exemption contains no such limitation. NHTSA is left to apply the exemption in a manner that is in the public interest and consistent with the Safety Act.

believes that this is an appropriate mitigation measure and has decided to grant Czinger's exemption subject to this term.

Czinger also suggested that it could install tear off screen protectors on the windshield that could be periodically replaced. NHTSA does not have sufficient information to evaluate the performance or safety impact of these tear off protectors. In particular, NHTSA does not know whether installation of the tear off protectors could decrease the overall safety of the vehicle. Accordingly, NHTSA is not requiring Czinger to install a protective screen on the 21C's windshield. Additionally, NHTSA cautions Czinger that if it chooses to install such a screen, it should take steps to ensure that the screen does not impair the safety of the windshield.

NHTSA has considered the information provided by Czinger in its petition and supplemental documentation and concludes that noncompliance with the abrasion resistance requirements, if mitigated by frequent inspection, would not result in an unreasonable risk to safety.

Apart from consideration of the risks associated with not meeting the abrasion resistance requirements, NHTSA believes it is appropriate to consider how polycarbonate windshields may differ from glass windshields in other ways. Czinger's petition is novel in that it is requesting an exemption from a requirement that has posed a barrier to the use of polycarbonate glazing and other plastics in vehicle windshields other than in low-speed vehicles.<sup>83</sup> Because of this requirement, windshield glazing has, until now and to NHTSA's knowledge, included a glass component that enabled the glazing to comply with the abrasion resistance requirements in Test 18. Heretofore, there has not been a need for NHTSA to consider whether there are any additional requirements that should be met for windshields beyond those considered for glass glazing. This is an important consideration when evaluating a request for an exemption from the abrasion resistance requirements. Glass and plastic have different characteristics, such that when plastic glazing is permitted for use in other locations in a vehicle (e.g., AS-4 glazing), the glazing

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<sup>83</sup> 49 CFR 571.205 S5.4.

must also comply with tests that would not be applicable to glass glazing, such as those for dimensional stability, chemical resistance, weathering, and flammability. By providing information supporting its assertion that the plastic glazing meets requirements for AS-4 glazing, Czinger has addressed much of this concern. However, because AS-4 glazing is not permitted for exterior windows in areas requisite for driving visibility, NHTSA notes that the safety performance of AS-4 plastic glazing is not equivalent to glass glazing permitted for use in windshields.

Czinger's third statement supporting its assertion that granting its exemption request is in the public interest and consistent with the Safety Act pertains to additional safety features included in the 21C. Czinger asserts that the vehicles will not present an unacceptable safety risk and states that the crash performance and occupant protection performance of the vehicles is improved when using polycarbonate, compared to laminated glazing. Specifically, Czinger states that it has performed crash simulations measuring occupant injury criteria and has observed overall improvements in performance. Czinger also states that the 21C has an advanced knee bolster system to minimize forward movement of the driver in an unbelted impact scenario, reducing the possibility of head impact to the windscreen.

As noted earlier, NHTSA considers, as part of its evaluation of whether granting a petition is in the public interest and consistent with the Safety Act, the impact on safety resulting from the noncompliance. If the noncompliance presented an unreasonable risk to motor vehicle safety, NHTSA would deny the exemption, regardless of whether the vehicles contained other features that increased the overall safety of the vehicles. That is, safety improvements in one area cannot offset unreasonable risks to safety in another. Therefore, NHTSA does not consider Czinger's addition of the advanced *crashworthiness* features described above as having a direct bearing on whether noncompliance with the specific *crash avoidance* feature (glazing abrasion resistance) from which it seeks exemption presents an unreasonable risk to safety. However, NHTSA does consider the addition of such safety features when considering the overall safety

impact of the exemption and the public interest benefits of supporting a start-up manufacturer that is working to develop and deploy new safety features. In this context, NHTSA has taken into account Czinger's addition of these advanced crashworthiness features in today's decision.

Czinger's fourth assertion is that the 21C will be produced in very small numbers and will not be used daily due to its unconventional design. Czinger asserts that the safety risks associated with the exemption would be minimal because the exempt vehicles would be driven significantly less than conventional vehicles. In support of this assertion, Czinger states that the 21C vehicles will cost more than \$2 million and will likely be purchased as collectors' items and be well cared for throughout their life. Czinger also provided mileage data from other hypercars demonstrating an average of 266 miles traveled per year. NHTSA agrees that it is appropriate to compare the 21C to other hypercars when considering the likely use of the vehicles. For this reason, NHTSA believes that Czinger's projection that the vehicles will be driven, on average, 350 miles a year is reasonable. NHTSA also agrees that limited use on public roads would minimize the risks associated with granting the exemption. Czinger estimates that it will only produce 55 vehicles for the U.S. market over the exemption period. While not impacting the safety of the use of individual vehicles, the limited production run of the vehicle would minimize the overall safety impact of granting the exemption.

Overall, NHTSA has considered the safety risks associated with Czinger's exemption request and believes that the safety impacts of granting the request would be minimal given the limited nature of the exemption, the limited number of vehicles affected, the expected limited use of the vehicles, and Czinger's commitment to inspect the windshields frequently and replace abraded windshields free of charge.

We now turn to Czinger's last two assertions supporting its argument that granting the petition is in the public interest. Czinger states that the denial of the exemption request could have a negative effect on U.S. employment and that the 21C's innovative technology is a benefit to the public. The information Czinger submitted indicating that it would face financial failure if

the exemption were denied also supports Czinger's assertion that denying the petition would have a negative impact on U.S. employment, not just on Czinger's 35 employees, but also on its U.S. suppliers. In support of its assertion that the 21C's innovative technology is a benefit to the public, Czinger notes that the 21C uses Additive Manufacturing technology, weight-saving technology, advanced hybrid drivetrain technology, and innovative crash protection technology. NHTSA agrees that both of these points weigh in favor of granting Czinger's petition.

Based on the information Czinger provided, NHTSA believes that, on balance, given the criteria for an economic hardship exemption, the limited nature of the exemption, the limited number of vehicles affected, the expected limited use of the vehicles, and Czinger's commitment to inspect the windshields frequently and replace abraded windshields free of charge, granting Czinger's petition is in the public interest and consistent with the Safety Act. NHTSA believes that the exemption will have minimal impact on motor vehicle safety due to the limited number of vehicles affected and the mitigating factors that reduce the safety risks associated with the requested exemption. NHTSA also finds that granting Czinger's exemption request will help a start-up company manufacture vehicles in the U.S., creating U.S. manufacturing jobs while also supporting development of innovative manufacturing processes in the automotive sector and affording consumers a wider variety of motor vehicle choices.

Number of Exempt Vehicles. The statutory cap for exemptions for low-volume manufacturers seeking a substantial hardship exemption requires that the manufacturer must have an annual world-wide production of 10,000 vehicles or less. Czinger originally petitioned for an exemption of up to 55 vehicles over the exemption period. However, in supplemental information submitted in January 2023, Czinger noted that it intended to produce up to 110 vehicles during the three-year exemption period, a substantial portion of which Czinger estimates will be exported to other countries. This falls well below the statutory cap, and NHTSA is granting the exemption for the entire estimated production of the 21C during the exemption period, for a total of 110 vehicles that may be manufactured and sold under the exemption.

Effective Date of the Exemption. In correspondence from April 5, 2023, Czinger requested that, if granted, its exemption begin on August 1, 2023. NHTSA is granting this request.

## **V. Conclusion**

In consideration of the foregoing, we conclude that compliance with the abrasion resistance requirements for windshields in FMVSS No. 205 would cause substantial economic hardship to a manufacturer that has tried in good faith to comply with the standard. We further conclude that granting an exemption from this requirement would be in the public interest and consistent with the Safety Act.

In accordance with 49 U.S.C. 30113(b)(3)(B)(i), the Czinger 21C is granted NHTSA Temporary Exemption No. EX 23-01, from the abrasion resistance requirements for AS-1 glazing to be used in the 21C's windshield for up to 110 vehicles produced over the exemption period. This exemption is effective from August 1, 2023 until July 31, 2026.

As explained above, the grant of this exemption is subject to the following conditions.

1. Czinger shall provide inspections of the windshield glazing of each 21C produced under this exemption, free of charge, at least once every six months during the service life of the vehicle.
2. Czinger shall replace, free of charge, the windshield of any exempted 21C vehicle produced under this exemption if the windshield becomes abraded due to normal wear and tear such that the abrasion noticeably impairs driver visibility.
3. Czinger shall report to NHTSA any instances in which it replaced a windshield on a 21C exempted vehicle that had become abraded due to normal use. Such report shall be made no later than 30 calendar days after such replacement.
4. The label required to be affixed pursuant to 49 CFR 555.9 must read in relevant part, "except for the abrasion resistance requirements for windshields in Standard No. 205, Glazing materials, exempted pursuant to NHTSA Exemption No. EX 23-01."

Authority: 49 U.S.C. 30113 and 49 U.S.C. 30166; delegations of authority at 49 CFR 1.95 and 49 CFR 501.4.

Issued in Washington, DC, under authority delegated in 49 CFR 1.95 and 501.4.

Sophie Shulman,  
Deputy Administrator.

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